

REMARKS

Claims 1-45 are pending in the present application. In the Office Action, claims 1-45 were rejected under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. In particular, the Examiner alleges that Applicants stated (in the Appeal Brief filed on May 14, 2004) that a process controller initializes a control model "following an *in situ* cleaning of a chamber." Applicants respectfully disagree and submit that the Examiner has incorrectly interpreted this phrase by taking it out of context. The complete sentence states that "historical data may allow the process controller to predict an approximate etch rate or deposition rate following an *in situ* cleaning of the chamber operation." (Emphasis added.) See Patent Application, page 10, lines 16-21. When read in context, Applicants submit that this sentence states that the process controller may predict what the approximate etch rate or deposition rate would be following the *in situ* cleaning of the chamber operation. Thus, Applicants submit that this statement is not inconsistent with the pending claims. In particular, this statement is not inconsistent with initializing the control model before a condition results. For example, as stated in the Appeal Brief, the process controller may use the approximate etch or deposition rate, *i.e.* the predicted etch rate or deposition rate, to initialize its control model for subsequent processing runs. See Patent Application, page 10, lines 21-22. Thus, Applicants respectfully submit that claims 1-45 are definite and request that the Examiner's rejections under 35 U.S.C. § 112, second paragraph, be withdrawn.

In the Office Action, claims 1-2, 4, 6, 11-13, 17, 22-24, 28, 30-31, 34, and 41-42 were rejected under 35 U.S.C. § 102(e) as allegedly being anticipated by Runnels (U.S. Patent No. 6,169,931). The Examiner's rejections are respectfully traversed.

Applicants respectfully submit that the Examiner's rejections are based on an erroneous interpretation of the claims language. In particular, Applicants believe that the Examiner has used an incorrect definition of the term "tool event." An inventor is entitled to be his or her own lexicographer. See, e.g., MPEP §2111.01. In the present case, Applicants have defined the term tool events to mean periodic preventative maintenance procedures or calibrations to keep the tool in optimum or acceptable operating condition. For example, polishing tools include polishing pads that are periodically conditioned or replaced. Etch tools and deposition tools are periodically cleaned using *in situ* cleans or complete disassembly cleans. Steppers are periodically calibrated to maintain alignment accuracy and exposure dose consistency. See Patent Application, page 4, ll. 10-18.

With regard to independent claims 1, 17, and 28, Applicants describe and claim, among other things, receiving a tool event notification. The identified claims also set forth initializing a control model of a processing tool in response to receiving the tool event notification. For example, process controllers may be notified of tool events that have the potential for affecting the operating characteristics of their associated tools and then the process controller may take a variety of actions to limit the likelihood of defective product processing that may be caused by the tool event. See Patent Application, page 9, ll. 11-22.

In contrast, Runnels is concerned with modeling wear of a chemical mechanical polishing pad. Runnels, however, is completely silent with regard to tool events. The Examiner alleges that setting a number of polished wafers to zero (box 902 in Figure 9 of Runnels) constitutes a tool event notification. Applicants respectfully disagree and submit that simply setting a counter indicative of a number of processed wafers to a particular number (zero, in this case) is not a tool event, as discussed above and as defined in the specification. Thus, Applicants submit that

Runnels does not teach or suggest receiving a tool event notification. Applicants also submit that Runnels does not teach or suggest initializing a control model of a processing tool in response to receiving the tool event notification.

For at least the aforementioned reasons, Applicants respectfully submit that the present invention is not anticipated by Runnels and request that the Examiner's rejections of claims 1-2, 4, 6, 11-13, 17, 22-24, 28, 30-31, 34, and 41-42 be withdrawn.

Moreover, Applicants respectfully submit that the present invention is not obvious over Runnels. To establish a *prima facie* case of obviousness, the prior art reference (or references when combined) must teach or suggest all the claim limitations. *In re Royka*, 490 F.2d 981, 180 U.S.P.Q. 580 (CCPA 1974). As discussed above, Runnels fails to teach or suggest receiving a tool event notification. Runnels also fails to teach or suggest initializing a control model of a processing tool in response to receiving the tool event notification. Furthermore, Runnels is directed to modeling wear of a chemical mechanical polishing pad and appears to be unconcerned with tool events. In particular, Runnels is not concerned with the potential for a tool event to affect operating characteristics of an associated tools or taking any action to limit the likelihood of defective product processing that may be caused by the tool event. Thus, Runnels provides no suggestion or motivation to modify the prior art to arrive at Applicants' claimed invention.

In the Office Action, claims 1-2, 4, 6-7, 11, 13, 17-18, 22, 24, 28-31, 34, and 42 were rejected under 35 U.S.C. § 102(e) as allegedly being anticipated by Mendez (U.S. Patent Publication No. 2001/0039462). Claims 35-37 were rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Mendez in view of Jevtic (U.S. Patent Publication No. 2002/0147960). Claims 3, 5, and 32-33 were rejected under 35 U.S.C. § 103(a) as allegedly

being unpatentable over Mendez in view of Vickers (U.S. Patent No. 5,659,467). Claims 14-15, 25-26, and 43-44 were rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Mendez in view of Klimasauskas (U.S. Patent No. 6,110,214). The Examiner's rejections are respectfully traversed.

Mendez is directed to software models used in chemical mechanical polishing. Mendez describes activating a feed-back control loop based upon input of post-chemical-mechanical-polishing data. The control loop updates a run-to-run parameter and tool drift parameter. The Examiner alleges that the input of post-chemical-mechanical-polishing data is a tool event. Applicants respectfully disagree. As discussed above and as defined in the specification, tool events are periodic preventative maintenance procedures or calibrations to keep the tool in optimum or acceptable operating condition. Applicants respectfully submit that inputting data into a database is not a tool event. Thus, Applicants submit that Mendez does not teach or suggest receiving a tool event notification. Applicants also submit that Mendez does not teach or suggest initializing a control model of a processing tool in response to receiving the tool event notification.

For at least the aforementioned reasons, Applicants respectfully submit that the present invention is not anticipated by Mendez and request that the Examiner's rejections of claims 1-2, 4, 6-7, 11, 13, 17-18, 22, 24, 28-31, 34, and 42 under 35 U.S.C. § 102(e) be withdrawn.

Moreover, Applicants respectfully submit that the present invention is not obvious over Mendez or any other cited reference, either alone or in combination. As discussed above, Mendez fails to teach or suggest receiving a tool event notification. Mendez also fails to teach or suggest initializing a control model of a processing tool in response to receiving the tool event notification. Furthermore, Mendez is directed to modeling chemical mechanical polishing using

a feed-back loop to update tool drift parameter and appears to be unconcerned with tool events. In particular, Mendez is not concerned with the potential for a tool event to affect operating characteristics of an associated tools or taking any action to limit the likelihood of defective product processing that may be caused by the tool event. Thus, Mendez provides no suggestion or motivation to modify the prior art to arrive at Applicants' claimed invention.

The Examiner relies on Jevtic to describe scheduling periodic removal of a wafer for testing, Vickers to describe use of an etch tool or a deposition tool, and Klimasauskas to describe providing a notification that a tool chamber has been cleaned. However, these references fail to remedy the aforementioned deficiencies of the primary reference.

For at least the aforementioned reasons, Applicants respectfully submit that the present invention is not obvious over Mendez in view of Jevtic, Vickers, or Klimasauskas, either alone or in combination. Applicants request that the Examiner's rejections of claims 3, 5, 14-15, 25-26, 32-33, 35-37, and 43-44 under 35 U.S.C. § 103(a) be withdrawn.

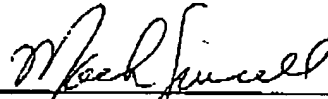
In the Office Action, the Examiner objected to claims 8-10, 16, 19-21, 27, 38-40, and 45 as being dependent upon a rejected base claim, but indicated that these claims contained allowable subject matter. In view of the aforementioned arguments, Applicants respectfully submit that these claims are in condition for allowance and request that the Examiner's objections be withdrawn.

For the aforementioned reasons, it is respectfully submitted that all claims pending in the present application are in condition for allowance. The Examiner is invited to contact the undersigned at (713) 934-4052 with any questions, comments or suggestions relating to the referenced patent application.

Respectfully submitted,

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